

## CLAIMS

What is claimed is:

1. A method of transmitting a location service message between a location server and a mobile station in a packet data network, said method comprising:

5 transmitting said location service message from said location server to a base station subsystem;  
forwarding said location service message from said base station subsystem to a serving GPRS support node; and  
forwarding said location service message from said serving GPRS support node  
10 to said mobile station.

2. The method of claim 1 wherein forwarding said location service message from said serving GPRS support node to said mobile station comprises encapsulating said  
15 location service message in a link control message and transmitting said link control message from said serving GPRS support node to said mobile station.

3. The method of claim 2 wherein transmitting said link control message from said serving GPRS support node to said mobile station comprises transmitting said link  
control message from said serving GPRS support node to said base station subsystem  
20 and relaying said link control message from said base station subsystem to said mobile station.

4. The method of claim 2 further comprising ciphering said link control message at said serving GPRS support node and deciphering said link control message at said mobile station.

5. A method of transmitting a location service message between a mobile station and a location server in a packet data network, said method comprising:

transmitting said location service message from said mobile station to said serving GPRS support node;

5 forwarding said location service message from said GPRS support node to a base station subsystem supporting said mobile station; and forwarding said location service message from said base station subsystem to said location server.

0 6. The method of claim 5 wherein transmitting said location service message from said mobile station to said serving GPRS support node comprises transmitting said location service message from said mobile station to said base station subsystem and relaying said location service message from said base station subsystem to said serving GPRS support node.

5 7. The method of claim 5 wherein transmitting said location service message from said mobile station to said serving GPRS support node comprises encapsulating said location service message within a link control message and transmitting said link control message from said mobile station to said serving GPRS support node.

20 8. The method of claim 7 further comprising ciphering said link control message at said mobile station and deciphering said link control message at said serving GPRS support node.

9. A communications network comprising:

a location server providing location services to clients related to the location of  
mobile terminals in said communication network, said location server  
communicating with said mobile terminals via location service messages;

5 a base station subsystem communicating with said location server and said  
mobile terminal, said base station subsystem receiving location service  
messages from said location server and said mobile station; and

a support node providing packet data services to said mobile station, said  
support node receiving downlink location service messages from said base  
station subsystem and forwarding said downlink location service messages  
to said mobile station, said support node further receiving uplink location  
service messages from said mobile station and forwarding said uplink  
location service messages to said base station subsystem.

10. The communication network of claim 9 wherein said support node transmits said  
downlink location service messages to said mobile station as part of a link control  
message.

11. The communication network of claim 10 wherein said support node transmits  
said downlink link control messages to said mobile station transparently through said  
base station subsystem.

12. The method of claim 11 wherein said support node and said mobile station support ciphering and deciphering of link control messages.

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13. A method of transmitting a location service message between a location server and a LMU in a packet data network, said method comprising:

transmitting said location service message from said location server to a base station subsystem;

5 forwarding said location service message from said base station subsystem to a serving GPRS support node; and

forwarding said location service message from said serving GPRS support node to said LMU.

10 14. The method of claim 13 wherein forwarding said location service message from said serving GPRS support node to said LMU comprises encapsulating said location service message in a link control message and transmitting said link control message from said serving GPRS support node to said LMU.

15 15. The method of claim 14 wherein transmitting said link control message from said serving GPRS support node to said LMU comprises transmitting said link control message from said serving GPRS support node to said base station subsystem and relaying said link control message from said base station subsystem to said LMU.

20 16. The method of claim 14 further comprising ciphering said link control message at said serving GPRS support node and deciphering said link control message at said LMU.

17. A method of transmitting a location service message between a LMU and a location server in a packet data network, said method comprising:

transmitting said location service message from said LMU to said serving GPRS support node;

5 forwarding said location service message from said GPRS support node to a base station subsystem supporting said LMU; and forwarding said location service message from said base station subsystem to said location server.

10 18. The method of claim 17 wherein transmitting said location service message from said LMU to said serving GPRS support node comprises transmitting said location service message from said LMU to said base station subsystem and relaying said location service message from said base station subsystem to said serving GPRS support node.

15 19. The method of claim 17 wherein transmitting said location service message from said LMU to said serving GPRS support node comprises encapsulating said location service message within a link control message and transmitting said link control message from said LMU to said serving GPRS support node.

20 20. The method of claim 19 further comprising ciphering said link control message at said LMU and deciphering said link control message at said serving GPRS support node.